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AN EXPERIMENTAL STUDY OF MULTI-BOOSTER SEPARATION AERODYNAMICS ON A 1/40 SCALE PSLV MODEL

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15. Abstract

Wind Tunnel tests were conducted on a 1/40 scale model of PSLV to determine the aerodynamic characteristics of the separating boosters in the interference flow field. A specially built test rig featuring articulated auxiliary support systems that provide a six degree of freedom positioning capability to each of the four separating boosters was utilized for the tests. Aerodynamic forces and moments on the boosters were measured by four separate balances with the boosters positioned at various pre-selected locations around the core vehicle. The test Mach number was 3.1 and the tests covered a range of values of seven other parameters. Some tests were also conducted on an isolated booster with and without protrusions. Details of the tests and results along with a preliminary analysis of some of the results are presented in this report.

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